

**Abstract**

The present invention makes available methods and reagents for inhibiting aberrant growth states resulting from *hedgehog* gain-of-function, *ptc* loss-of-function or *smoothened* gain-of-function comprising contacting a cell with a compound, such as a polypeptide or small molecule in an amount sufficient to control the aberrant growth state, e.g., to agonize a normal *ptc* pathway or antagonize *smoothened* or *hedgehog* activity. The present invention further makes available methods and reagents for ameliorating the consequences of *hedgehog* loss-of-function, *ptc* gain-of-function, or *smoothened* loss-of-function comprising contacting a cell with a compound, such as a polypeptide or small molecule, in an amount sufficient to ameliorate the In certain embodiments, the subject compounds, e.g., a cAMP analog, adenylate cyclase agonist, or cAMP phosphodiesterase inhibitor, regulate cAMP levels, which in turn modulates activity of the *hedgehog* pathway.